**WHAT IS CLAIMED IS:**

1        1.     An intelligent policy server method in an Asynchronous

2    Transfer Mode (ATM) network having an ingress switch and an egress

3    switch, wherein said ingress switch serves an ingress device operated by

4    a calling party and said egress switch serves an egress device operated

5    by a called party, comprising the steps of:

6            receiving, in said ingress switch, a signaling message from

7    said ingress device;

8            providing said signaling message to a signaling intercept

9    processor associated with said ingress switch;

10          propagating said signaling message to a policy server, said

11    policy server including at least one policy profile having a plurality of

12    policy features;

13          determining in said policy server, based at least in part on

14    said signaling message, if a particular policy feature is to be invoked;

15          if so, determining whether a policy condition associated

16    with said particular policy feature is satisfied with respect to said

17    signaling message; and

18          establishing a connection path between said ingress switch

19    and said egress switch based on said determination that said policy

20    condition is satisfied by said signaling message.

1       2.     The intelligent policy server method in an ATM network as

2    set forth in claim 1, wherein said signaling message comprises a Connect

3    message.

1       3.     The intelligent policy server method in an ATM network as

2    set forth in claim 1, wherein said signaling message comprises an Add

3    Party message.

1       4.     The intelligent policy server method in an ATM network as

2    set forth in claim 1, wherein said signaling message comprises a Release

3    message.

1       5.     The intelligent policy server method in an ATM network as

2    set forth in claim 1, wherein said signaling message comprises a Setup

3    message.

1       6.     The intelligent policy server method in an ATM network as

2    set forth in claim 5, wherein said particular policy feature comprises a

3    source address validation feature.

1    7.    The intelligent policy server method in an ATM network as

2    set forth in claim 5, wherein said particular policy feature comprises a

3    maximum call attempt rate limit feature.


1    8.    The intelligent policy server method in an ATM network as

2    set forth in claim 5, wherein said particular policy feature comprises a

3    destination address screening feature.


1    9.    The intelligent policy server method in an ATM network as

2    set forth in claim 5, wherein said particular policy feature comprises a

3    source address screening feature.


1    10.    The intelligent policy server method in an ATM network as

2    set forth in claim 5, wherein said particular policy feature comprises a

3    maximum burst size limit feature.


1    11.    The intelligent policy server method in an ATM network as

2    set forth in claim 5, wherein said particular policy feature comprises an

3    aggregate bandwidth limit feature.

1        12.    The intelligent policy server method in an ATM network as

2     set forth in claim 5, wherein said particular policy feature comprises a

3     service class selection feature.


1        13.    The intelligent policy server method in an ATM network as

2     set forth in claim 5, wherein said particular policy feature comprises a

3     maximum concurrent call limit feature.

1      14.   An Asynchronous Transfer Mode (ATM) network for

2      effectuating intelligent policy features with respect to a call to be

3      established between two parties via a virtual channel connection,

4      comprising:

5      an ATM switch serving a customer premises equipment

6      (CPE) operated by a party with respect to said call;

7      a signaling intercept processor associated with said ATM

8      switch for intercepting a signaling message relative to said call; and

9      a policy server associated with said signaling intercept

10      processor, said policy server including at least one policy profile having

11      a plurality of policy features, wherein said policy server operates to

12      effectuate a particular policy feature with respect to said call when

13      triggered by said signaling message received from said signaling

14      intercept processor.

1      15.   The ATM network for effectuating intelligent policy

2      features with respect to a call as set forth in claim 14, wherein said

3      signaling message comprises a Connect message.

1        16.    The ATM network for effectuating intelligent policy

2     features with respect to a call as set forth in claim 14, wherein said

3     signaling message comprises an Add Party message.

1        17.    The ATM network for effectuating intelligent policy

2     features with respect to a call as set forth in claim 14, wherein said

3     signaling message comprises a Release message.

1        18.    The ATM network for effectuating intelligent policy

2     features with respect to a call as set forth in claim 14, wherein said

3     signaling message comprises a Setup message.

1        19.    The ATM network for effectuating intelligent policy

2     features with respect to a call as set forth in claim 18, wherein said

3     particular policy feature comprises a source address validation feature for

4     ensuring that said party is an authorized party for accessing said ATM

5     network through a particular network port associated with said CPE.

1        20.    The ATM network for effectuating intelligent policy

2     features with respect to a call as set forth in claim 19, wherein said

3     particular network port is a Customer Logical Port.

1    21.    The ATM network for effectuating intelligent policy

2    features with respect to a call as set forth in claim 19, wherein said

3    particular network port is a full physical port.

1    22.    The ATM network for effectuating intelligent policy

2    features with respect to a call as set forth in claim 18, wherein said

3    particular policy feature comprises a maximum call attempt rate limit

4    feature for monitoring the number of Setup messages received from said

5    party over a predetermined period of time.

1    23.    The ATM network for effectuating intelligent policy

2    features with respect to a call as set forth in claim 18, wherein said

3    particular policy feature comprises a destination address screening

4    feature for defining a plurality of addresses to which said party can

5    effectuate said call.

1    24.    The ATM network for effectuating intelligent policy

2    features with respect to a call as set forth in claim 23, wherein said

3    destination address screening feature is established for a group of

4    subscribers to which said party belongs.

1     25.    The ATM network for effectuating intelligent policy

2    features with respect to a call as set forth in claim 18, wherein said

3    particular policy feature comprises a source address screening feature for

4    defining a plurality of addresses from which said call can be initiated to

5    said party.


1     26.    The ATM network for effectuating intelligent policy

2    features with respect to a call as set forth in claim 25, wherein said

3    source address screening feature is established for a group of subscribers

4    to which said party belongs.


1     27.    The ATM network for effectuating intelligent policy

2    features with respect to a call as set forth in claim 18, wherein said

3    particular policy feature comprises a maximum burst size limit feature for

4    limiting a burst-size request associated with said call.


1     28.    The ATM network for effectuating intelligent policy

2    features with respect to a call as set forth in claim 27, wherein said burst-

3    size request comprises the number of packets per second allowed to be

4    transmitted to said ATM network with respect to said call.

1    29.    The ATM network for effectuating intelligent policy
2    features with respect to a call as set forth in claim 27, wherein said burst-
3    size request comprises the number of packets per second allowed to be
4    received by said party from said ATM network with respect to said call.

1    30.    The ATM network for effectuating intelligent policy
2    features with respect to a call as set forth in claim 18, wherein said
3    particular policy feature comprises an aggregate bandwidth limit feature
4    for determining a maximum bandwidth allowable for a particular
5    network port authorized for use by said party.

1    31.    The ATM network for effectuating intelligent policy
2    features with respect to a call as set forth in claim 18, wherein said
3    particular policy feature comprises a service class selection feature for
4    specifying a service class with respect to a network port used by said
5    party.

1    32.    The ATM network for effectuating intelligent policy
2    features with respect to a call as set forth in claim 31, wherein said
3    service class comprises a constant bit-rate (CBR) service.

1       33.   The ATM network for effectuating intelligent policy

2   features with respect to a call as set forth in claim 31, wherein said

3   service class comprises a variable bit-rate (VBR) service.


1       34.   The ATM network for effectuating intelligent policy

2   features with respect to a call as set forth in claim 33, wherein said VBR

3   service is a real-time VBR service.


1       35.   The ATM network for effectuating intelligent policy

2   features with respect to a call as set forth in claim 33, wherein said VBR

3   service is a non-real-time VBR service.


1       36.   The ATM network for effectuating intelligent policy

2   features with respect to a call as set forth in claim 31, wherein said

3   service class comprises an unspecified bit-rate (UBR) service.

1    37.   The ATM network for effectuating intelligent policy

2    features with respect to a call as set forth in claim 31, wherein said

3    service class comprises an available bit-rate (ABR) service.

1    38.   The ATM network for effectuating intelligent policy

2    features with respect to a call as set forth in claim 18, wherein said

3    particular policy feature comprises a maximum concurrent call limit

4    feature for specifying the total number of calls allowed concurrently with

5    respect to a network port used by said party.

1    39. A computer-readable medium operable with an

2    Asynchronous Transfer Mode (ATM) network node, said computer-

3    readable medium carrying a sequence of instructions provided for

4    executing service logic which, when executed by a processing entity

5    associated with said ATM network node, causes said ATM network node

6    to perform the steps of:

7    upon receiving in said ATM network node a signaling

8    message with respect to a call from a party, propagating said signaling

9    message to a policy server operably associated with said ATM network

10    node; and

11    upon determining that a policy condition associated with a

12    particular policy feature to be invoked is satisfied with respect to said

13    signaling message, effectuating a treatment for said call based on said

14    particular policy feature.


1    40. The computer-readable medium operable with an ATM

2    network node as set forth in claim 39, wherein said treatment comprises

3    establishing a virtual channel connection between said party and another

4    party for said call.

1        41.     The computer-readable medium operable with an ATM

2   network node as set forth in claim 39, wherein said treatment comprises

3   denying a virtual channel connection for said call.

1        42.     The computer-readable medium operable with an ATM

2   network node as set forth in claim 39, wherein said signing message

3   comprises a Connect message.

1        43.     The computer-readable medium operable with an ATM

2   network node as set forth in claim 39, wherein said signing message

3   comprises an Add Party message.

1        44.     The computer-readable medium operable with an ATM

2   network node as set forth in claim 39, wherein said signing message

3   comprises a Release message.

1        45.     The computer-readable medium operable with an ATM

2   network node as set forth in claim 39, wherein said signing message

3   comprises a Setup message.

1    46.    The computer-readable medium operable with an ATM

2    network node as set forth in claim 45, wherein said particular policy

3    feature signing message comprises a source address validation feature for

4    ensuring that said party is an authorized party for accessing said ATM

5    network node through a particular network port associated therewith.

1    47.    The computer-readable medium operable with an ATM

2    network node as set forth in claim 46, wherein said particular network

3    port is a Customer Logical Port.

1    48.    The computer-readable medium operable with an ATM

2    network node as set forth in claim 46, wherein said particular network

3    port is a full physical port.

1    49.    The computer-readable medium operable with an ATM

2    network node as set forth in claim 45, wherein said particular policy

3    feature signing message comprises a maximum call attempt rate limit

4    feature for monitoring the number of Setup messages received from said

5    party over a predetermined period of time.

1            50.     The computer-readable medium operable with an ATM

2    network node as set forth in claim 45, wherein said particular policy

3    feature comprises a destination address screening feature for defining a

4    plurality of addresses to which said party can effectuate said call.

1            51.     The computer-readable medium operable with an ATM

2    network node as set forth in claim 50, wherein said destination address

3    screening feature is established for a group of subscribers to which said

4    party belongs.

1            52.     The computer-readable medium operable with an ATM

2    network node as set forth in claim 45, wherein said particular policy

3    feature comprises a source address screening feature for defining a

4    plurality of addresses from which said call can be initiated to said party.

1            53.     The computer-readable medium operable with an ATM

2    network node as set forth in claim 52, wherein said source address

3    screening feature is established for a group of subscribers to which said

4    party belongs.

1       54.    The computer-readable medium operable with an ATM

2      network node as set forth in claim 45, wherein said particular policy

3      feature comprises a maximum burst size limit feature for limiting a burst-

4      size request associated with said call.

1       55.    The computer-readable medium operable with an ATM

2      network node as set forth in claim 54, wherein said burst-size request

3      comprises the number of packets per second allowed to be transmitted to

4      said ATM network node with respect to said call.

1       56.    The computer-readable medium operable with an ATM

2      network node as set forth in claim 54, wherein said burst-size request

3      comprises the number of packets per second allowed to be received by

4      said party from said ATM network node with respect to said call.

1       57.    The computer-readable medium operable with an ATM

2      network node as set forth in claim 45, wherein said particular policy

3      feature comprises an aggregate bandwidth limit feature for determining

4      a maximum bandwidth allowable for a particular network port authorized

5      for use by said party.

1       58.    The computer-readable medium operable with an ATM

2    network node as set forth in claim 45, wherein said particular policy

3    feature comprises a service class selection feature for specifying a

4    service class with respect to a particular network port used by said party.

1       59.    The computer-readable medium operable with an ATM

2    network node as set forth in claim 58, wherein said service class

3    comprises a constant bit-rate (CBR) service.

1       60.    The computer-readable medium operable with an ATM

2    network node as set forth in claim 58, wherein said service class

3    comprises a variable bit-rate (VBR) service.

1       61.    The computer-readable medium operable with an ATM

2    network node as set forth in claim 60, wherein said VBR service is a

3    real-time VBR service.

1       62.    The computer-readable medium operable with an ATM

2    network node as set forth in claim 60, wherein said VBR service is a

3    non-real-time VBR service.

1        63.     The computer-readable medium operable with an ATM

2 network node as set forth in claim 58, wherein said service class

3 comprises an unspecified bit-rate (UBR) service.


1        64.     The computer-readable medium operable with an ATM

2 network node as set forth in claim 58, wherein said service class

3 comprises an available bit-rate (ABR) service.


1        65.     The computer-readable medium operable with an ATM

2 network node as set forth in claim 45, wherein said particular policy

3 feature comprises a maximum concurrent call limit feature for specifying

4 the total number of calls allowed concurrently with respect to a particular

5 network port used by said party.

1    66.    A memory structure for storing data usable in effectuating

2    intelligent policy features in an Asynchronous Transfer Mode (ATM)

3    network wherein said memory structure is operable with a processing

4    entity associated with a policy server node disposed in said ATM

5    network, comprising:

6    a data structure having a list of subscribers wherein said

7    subscribers are authorized to access said ATM network to setup virtual

8    channel connections for service;

9    each of said subscribers having an ATM address and a

10   Customer Logical Port (CLP) ID associated therewith; and

11   a profile array associated with said subscribers wherein a

12   policy feature record is populated for each subscriber with at least one

13   policy feature which indicates a specific treatment for a call to be

14   effectuated relative to said each subscriber.

1       67.    The memory structure for storing data usable in effectuating

2    intelligent policy features in an ATM network as set forth in claim 66,

3    wherein said at least one policy feature is selected from the group

4    consisting of: a source address validation feature, a maximum call

5    attempt rate limit feature, a destination address screening feature, a

6    source address screening feature, a maximum burst size limit feature, an

7    aggregate bandwidth limit feature, a service class selection feature, and

8    a maximum concurrent call limit feature.

1       68.    The memory structure for storing data usable in effectuating

2    intelligent policy features in an ATM network as set forth in claim 67,

3    wherein said virtual channel connections comprise switched connections.

1       69.    The memory structure for storing data usable in effectuating

2    intelligent policy features in an ATM network as set forth in claim 68,

3    wherein said at least one policy feature is invoked by a trigger received

4    in a signaling message transmitted with respect to said call.

1       70.    The memory structure for storing data usable in effectuating

2    intelligent policy features in an ATM network as set forth in claim 69,

3    wherein said signaling message comprises a Connect message.

1        71.    The memory structure for storing data usable in effectuating

2        intelligent policy features in an ATM network as set forth in claim 69,

3        wherein said signaling message comprises an Add Party message.

1        72.    The memory structure for storing data usable in effectuating

2        intelligent policy features in an ATM network as set forth in claim 69,

3        wherein said signaling message comprises a Release message.

1        73.    The memory structure for storing data usable in effectuating

2        intelligent policy features in an ATM network as set forth in claim 69,

3        wherein said signaling message comprises a Setup message.

1    74.    A source address validation method operable in an

2    Asynchronous Transfer Mode (ATM) network, comprising the steps of:

3            assigning a port ID to a Customer Logical Port (CLP) served

4    by an ATM node disposed in said network;

5            associating a customer ID with said CLP wherein a plurality

6    of addresses specified for said customer ID are authorized for use with

7    said CLP;

8            upon receiving in said ATM node a signaling message from

9    a user operating a customer premises equipment (CPE) through said

10   CLP, determining if said CPE's address belongs to said plurality of

11   addresses authorized for said CLP; and

12           if so, establishing a virtual channel connection through said

13   ATM network for said user.

1    75.    A method of restricting call connection attempts by a user

2    in an Asynchronous Transfer Mode (ATM) network, comprising the

3    steps of:

4            specifying a limit on the number of call setup requests

5    received over a predetermined period at a Customer Logical Port (CLP)

6    served by an ATM node disposed in said network;

7            receiving in said ATM node a signaling message from said

8    user operating a customer premises equipment (CPE) through said CLP;

9            determining if said limit on the number of call setup

10   requests is exceeded by said signaling message in said predetermined

11   period; and

12           if said limit on the number of call setup requests is not

13   exceeded by said signaling message in said predetermined period,

14   establishing a virtual channel connection through said ATM network for

15   said user.

1    76.    A method of screening destination addresses in an

2    Asynchronous Transfer Mode (ATM) network, comprising the steps of:

3              defining a positive list of addresses to which a user is

4    allowed to make call connections;

5              defining a negative list addresses to which said user is not

6    allowed to make call connections;

7              receiving in an ATM node a signaling message from said

8    user operating a customer premises equipment (CPE) through a

9    Customer Logical Port served by said ATM node, said signaling message

10   for attempting to setup a call connection to a called party;

11             determining if said called party's address belongs to said

12   positive list of addresses; and

13             if so, establishing said call connection through said ATM

14   network for said user.

1       77.     A method of screening source addresses in an Asynchronous

2    Transfer Mode (ATM) network, comprising the steps of:

3              defining a positive list of addresses from which call

4    connections are allowed to terminate to a user;

5              defining a negative list addresses from which call

6    connections are not allowed to terminate to said user;

7              receiving in an ATM node a signaling message from a

8    calling party operating a customer premises equipment (CPE) through a

9    Customer Logical Port served by said ATM node, said signaling message

10   for attempting to setup a call connection to said user;

11             determining if said calling party's address belongs to said

12   positive list of addresses; and

13             if so, establishing said call connection through said ATM

14   network for said user.

1          78.    A method of restricting burst-size requests received for call

2     connections in an Asynchronous Transfer Mode (ATM) network,

3     comprising the steps of:

4          defining a forward burst-size limit allowed for an individual

5     call connection established through a Customer Logical Port served by

6     an ATM node disposed in said network;

7          defining a backward burst-size limit allowed for said

8     individual call connection established through said CLP;

9          receiving in said ATM node via said CLP a signaling

10    message from a user with respect to a particular call connection, said

11    signaling message including at least one of a forward burst-size request

12    and a backward burst-size request;

13          determining if at least one of said forward burst-size request

14    and said backward burst-size request exceeds said corresponding burst-

15    size limit;

16          if so, denying said particular call connection through said

17    ATM network for said user.

1    79.    A class-of-service provisioning method for call connections

2    in an Asynchronous Transfer Mode (ATM) network, comprising the

3    steps of:

4         configuring a plurality of service classes for a Customer

5    Logical Port served by an ATM node disposed in said network;

6         receiving in said ATM node via said CLP a signaling

7    message from a user with respect to a particular call connection, said

8    signaling message including a class-of-service request;

9         determining if said class-of-service request is allowed for

10    said CLP;

11         if so, establishing said call connection through said ATM

12    network for said user.

1        80.    A method of restricting the number of concurrent active call

2    connections in an Asynchronous Transfer Mode (ATM) network,

3    comprising the steps of:

4            defining a concurrent call limit allowed for a Customer

5    Logical Port served by an ATM node disposed in said network;

6            receiving in said ATM node via said CLP a signaling

7    message from a user with respect to a particular call connection;

8            determining if said concurrent call limit for said CLP would

9    be exceeded by said signaling message;

10           if so, denying said particular call connection through said

11    ATM network for said user.

1    81.    A bandwidth control method operable in an Asynchronous

2    Transfer Mode (ATM) network, comprising the steps of:

3         specifying a total forward bandwidth allocated for a

4    Customer Logical Port (CLP) served by an ATM node disposed in said

5    network;

6         specifying a total backward bandwidth allocated for said

7    CLP;

8         receiving in said ATM node via said CLP a signaling

9    message from a user with respect to a particular call connection, said

10   signaling message including at least one of a service class request and a

11   plurality of bandwidth parameters;

12        calculating at least one of a forward bandwidth request and

13   a backward bandwidth request corresponding to said particular call

14   connection;

15        applying an overbooking factor to at least of said forward

16   bandwidth request and said backward bandwidth request calculated for

17   said particular call connection, thereby generating an adjusted forward

18   bandwidth request and an adjusted backward bandwidth request;

19        computing a remaining bandwidth after accounting for

20   bandwidth in use in each direction;

21          comparing said adjusted forward bandwidth request and said

22     adjusted backward bandwidth request to said remaining bandwidth in

23     each direction; and

24          if said adjusted forward and backward bandwidth requests

25     exceed said remaining bandwidth in each direction, establishing said

26     particular call connection through said ATM network for said user.